

**Enallagmas Collected in Florida and South Carolina  
by Jesse H. Williamson with Descriptions of  
Two New Species (Odonata, Agrionidae).**

By E. B. WILLIAMSON, Bluffton, Indiana.

(Plate VI)

Mr. Williamson collected dragonflies in Florida from March 1 to April 26, 1921. Localities visited and dates are as follows: Sebring, March 1; Fort Myers, March 3-7 and 10-19; Taxambas, Marco Island, March 8; Labelle, March 21-27; Moore Haven, March 29 and 30, and April 2; Palmdale, March 31 and April 3-8; enroute Moore Haven to West Palm Beach, across Lake Okeechobee, April 9; Miami, April 12; Enterprise, April 15-26. From April 29 to May 9 he collected at Kathwood, Aiken County, South Carolina, but at this time most of the species observed were just emerging. Mr. Williamson has distributed his Florida dragonflies into twenty-five sets which he has donated to students of Odonata.

Dr. Calvert's recent paper, *Gundlach's Work on the Odonata of Cuba*, (Trans. Am. Ent. Soc., XLV, 1919) contains a careful study of certain Enallagmas, related to *Enallagma truncatum*, which may be designated as the *pollutum* group. This work of Dr. Calvert's has made possible the recognition of two undescribed species of the group from Florida. The following descriptions of these species follow the form of Calvert's descriptions and are supplementary to his paper.

**Enallagma sulcatum** new species (Pl. VI, Figs. 1-5).

♂. Superior appendages in profile view with the apical margin subequal to the inferior margin, produced; in dorsal view, the intero-inferior lamella reaching far beyond the level of the supero-internal apical hook.

Nasus shining black, with a small pale area on either side (similar to that of *truncatum* in Calvert's figure 1, except that the black extends nearly or quite to the anterior and lateral margins), to largely orange with a transverse bar across the base and another paralleling the anterior margin, these bars connected or not at their extremities and in the median line, and the anterior bar sometimes broken with orange.

Frons: pale color of the anterior surface not reaching the yellow or orange spot immediately anterior to the median ocellus; in some specimens the black anteriorly is slightly more reduced than in figure 4.

Pale postocular spots linear-cuneiform, not confluent with the pale color of the rear of the head, being separated therefrom by a broad bar of black across the rear of the head above.

Middle prothoracic lobe in dorsal view predominately black, a yellow or orange spot each side, no median twin spots or stripes.

Width of black middorsal thoracic stripe about .87, of pale antehumeral about .26, of black humeral about .55 mm.

Second lateral thoracic suture with a black stripe on about the upper five-sixths of its length, continued as a thread of black to the inferior end of the suture.

Abdominal segment 9 blue.

♀. Mesostigmal lamina largely black, with a pale stripe which includes the dorsal tubercle and extends downward and slightly forward; the posterior and inferior black portion of the lamina grooved (hence the specific name) to receive the dorsal branch of the superior appendage of the male; this groove produced dorsally and anteriorly across the pale stripe slightly below the dorsal tubercle, at which point the pale stripe is more or less interrupted.

Antero-mesal angle of the pale antehumeral stripe elevated and prominent, but not produced into a tubercle.

Width of the black middorsal thoracic stripe about .78, of pale antehumeral about .27, of black humeral about .5 mm.

Second lateral thoracic suture with a black stripe on slightly less than the upper five-sixths of its length, continued as a thread of black to the inferior end of the suture.

Black on dorsum of abdominal segment 9 with the sides nearly parallel or narrowing caudad, and extending from the base to from two-thirds to three-fourths the length of the segment.

Abdomen ♂ 27-28, ♀ 26.5-29; hind wing ♂ 16.5-17.5, ♀ 17-19; stigma front wing ♂ .6-.67, ♀ .67, of hind wing ♂ .67, ♀ .7-.83 mm.

Anal bridge separating from the hind margin proximal to Cu-A a distance about equal to or slightly greater than the length of Cu-A. M2 front wing arising at or near the fourth postnodal in 5 male wings, at or near the fifth postnodal in 5 male and 8 female wings; M2 hind wing arising at or near the fourth postnodal in 10 male wings and 8 female wings; M1a front wing arising at the seventh postnodal in 10 male wings and 2 female wings, at the eighth postnodal in 6 female wings; M1a hind wing arising at the seventh postnodal in 10 male wings and 7 female wings, at the eighth postnodal in 1 female wing.

Material examined: Gotha, Florida, June 23, 1898, through James Tough, ♂, coll. E. B. W.; Enterprise, Florida, April 18, 19, 21, 25 and 26, 1921, J. H. Williamson, 7 ♂, 4 ♀. *Type* ♂ April 26, *allotype* ♀ April 19, coll. E. B. W. This

species was taken by Mr. Williamson at Gleason's Pond, Buckeye Homestead Pond, Quackenbos Pond, and a small swamp about a quarter of a mile east of Gleason's Pond.

The male of *sulcatum* runs out in Calvert's key to *truncatum* and *pollutum*, with the postocular spots more linear than cuneiform. From *truncatum* it is separated at once by the form of the appendages and by the more extensive pale areas on the head in dorsal view. From *pollutum* it is separated at once by having the ninth segment blue, not yellow or orange, and by the form of the appendages.

Writing of the males of *vesperum* and *signatum* Dr. Calvert (p. 376, loc. cit.) says he has found no constant color differences. I have seen many specimens of both species and in every case abdominal segment 9 of *signatum* has been yellow and of *vesperum* blue, but Dr. Calvert writes me that a specimen of *signatum* from Indiana seen by him had 9 blue. This coloration is certainly rare, and in the case of the specimen seen by Dr. Calvert may have been due to some adventitious cause. In the same way, all the males of *pollutum* seen by me have 9 yellow. The males of *vesperum* and *sulcatum* are alike in having 9 blue, and there is a superficial resemblance in the shape of the appendages. But *sulcatum* is at once separated from *vesperum* and from all other species of the *pollutum* group, by having the pale, less chitinized, intero-inferior lamella produced apically beyond the level of the darker, more chitinized, externo-superior branch of the superior appendages. In *vesperum* the mesal edge of the intero-inferior lamella is emarginate; in *sulcatum* it is entire and slightly concave as shown in figure 3.

In Calvert's key to the known females of the group, *sulcatum* runs out to *signatum* and *pollutum*, which are separated in the key by the presence in *signatum* and absence in *pollutum* of mesepisternal tubercles. *Sulcatum* seems more like *pollutum*, as contrasted with *signatum*, in this character, which, however, is not always readily recognized. It is variable (in *vesperum*) according to Calvert, and among specimens of all the known species, I have found the tubercle absent in at least some of the specimens of all the species except *signatum*.

The female of *sulcatum* is further defined in a brief key to the known females following the description of *E. concisum*.

Specimens of *sulcatum* have been studied by Dr. Calvert and in his opinion the species is distinct.

**Enallagma concisum** new species (Pl. VI, Figs. 6-10).

♂. Superior appendage in profile view with the apical margin about two-thirds as long as the inferior margin, oblique, nearly straight, and not bilobed but with the inferior apical angle of the intero-inferior lamella slightly enlarged. In dorsal view the intero-inferior lamella reaches the level or nearly the level of the supero-internal subapical hook but the dorso-apical portion of the intero-inferior lamella is produced obliquely apically to fuse with the externo-superior branch of the appendage, so the distinction between the externo-superior branch and the intero-inferior lamella is not well marked in the sub-apical part of the appendage as it is in corresponding parts of *pictum*. This results from the greater length of the externo-superior branch of the appendage in *concisum* as compared with *pictum*, and it is in *concisum* that the supero-internal subapical tooth is relatively more apical and therefore more reduced.

Nasus orange, a transverse basal black stripe and on either side, at mid-length, a small brown to black depression.

Frons: pale color of its anterior surface on either side reaching the level of the median ocellus, but the latter is bordered in front with a small pale area of varying size and an anteriorly projecting quadrangle of black, the latter often unsymmetrical, and in one case broken, so the small yellow area in front of and adjacent to the median ocellus is joined on one side with the anterior orange color of the frons.

Pale postocular spots linear cuneiform, widely separated by black from the pale color on the rear of the head below.

Prothorax shining greenish black, front and hind lobes broadly edged with orange; and sides of middle lobe paler orange; dorsum of middle lobe with a round orange spot, varying greatly in size on either side, and with a median orange geminate spot of varying size present or wanting.

Width of black middorsal thoracic stripe about .67, of pale antehumeral about .33, of black humeral about .43 mm.

Second lateral suture with a black stripe its entire length, widening posteriorly from a narrow line at its anterior end.

Abdominal segment 9 orange on the sides below, dorsum black except the apical membranous ring which is orange.

♀. Mesostigmal lamina largely pale, the upper half, anterior to the pale vertical posterior inflated carina, and a very narrow border, posterior to this carina, black.

The merest prominence and no trace of a tubercle on the antero-mesal angle of the pale antehumeral stripe.

Width of black middorsal thoracic stripe about .7, of the antehumeral about .35, of black humeral about .44 mm.

Second lateral thoracic suture with a black stripe its entire length, widening posteriorly from a narrow line at its anterior end.

Black on dorsum of abdominal segment 9 of uniform width.

Abdomen ♂ 24.5-25.5, ♀ 26; hind wing ♂ 14.5, ♀ 17; stigma front wing ♂ .5-.53, ♀ .61, of hind wing ♂ .5-.53, ♀ .67 mm.

Anal bridge in front wing separating from the hind margin proximal to Cu-A a distance equal to about one and one-half times the length of Cu-A; in the hind wing a distance slightly greater than the length of Cu-A. M2 front wing arising at or near the fourth postnodal in 2 male wings, at or near the fifth postnodal in 8 male and 2 female wings; M2 hind wing arising at or near the fourth postnodal in 10 male and 2 female wings; M1a front wing arising at the seventh postnodal in 6 male and 2 female wings, at the eighth postnodal in 4 male wings; M1a hind wing arising at the sixth postnodal in 3 male and 1 female wings, at the seventh postnodal in 7 male and 1 female wings.

Material examined: Buckeye Homestead Pond, Enterprise, Florida, April 21 and 26, 1921, J. H. Williamson, 13 ♂, 1 ♀; *Type* ♂ and *allotype* ♀, April 21, coll. E. B. W.

Mr. Williamson noted of this species on April 21: "Occurred at Buckeye (Homestead) Pond. Generally found resting in inner ring of vegetation where the water was about waist deep. Seen only at rest and hard to find."

(To be continued)

#### EXPLANATION OF PLATE VI.

Figs. 1-5. *Enallagma sulcatum* n. sp. Figs. 1-3, appendages of the ♂ type in lateral, dorsal and dorso-oblique views. Fig. 4, dorsal view of head of ♂ type. Fig. 5, dorso-oblique view of middle lobe of prothorax of ♀ allotype.

Figs. 6-10. *Enallagma concisum* n. sp. Figs. 6-8, appendages of ♂ type in lateral, dorsal and dorso-oblique views. Fig. 9, dorsal view of head of ♂ type. Fig. 10, dorso-oblique view of middle lobe of prothorax of ♀ allotype.

---

#### Information on Bibliographies and Catalogs Wanted.

The Division of Biology and Agriculture and the Research Information Service, National Research Council, are undertaking a canvas of manuscript and published bibliographies on plant and animal biology, and of manuscript of plants and animals (recent and fossil), with the view of relieving the needs of working biologists along these lines. Blank forms for reporting such information may be obtained from C. J. West of the Council, 1701 Massachusetts Ave., Washington, D. C.